

AASHTO T 2 – SAMPLING OF AGGREGATES

Conduct this procedure according to AASHTO T 2, NDDOT Modified

The test standard has a minimum size of sample to be obtained. NDDOT modification to the test standard is the minimum size of sample to be obtained has been changed.

The test standard identifies a number of ways to collect samples. The NDDOT modification is to add an additional procedure which is sampling from a windrow.

Consult the current edition of AASHTO for procedure in its entirety and equipment specification details.

SCOPE

This test defines the procedures used to obtain samples that will show the nature and condition of the materials which they represent.

REFERENCED DOCUMENTS

AASHTO T 248, Reducing Samples of Aggregate to Testing Size

TERMINOLOGY

Maximum Size Of Aggregate – the smallest sieve opening through which the entire amount of aggregate is required to pass.

Nominal Maximum Size – the smallest sieve opening through which the entire amount of the aggregate is permitted to pass.

Maximum Aggregate Size (Superpave) – one size larger than the nominal maximum aggregate size.

Nominal Maximum Aggregate Size (Superpave) – one size larger than the first sieve that retains more than 10% aggregate.

APPARATUS

Containers, pails or bags
Shovel
Scoop or spoon
Brush
Sampling tubes

TEST SPECIMEN

The sample size is based on the type and number of tests to be performed. The following table gives the approximate sample size required for different aggregate sizes.

SIZE OF SAMPLE	
Nominal Size of Aggregate ^A	Approximate Minimum Mass of Field Samples ^B
Fine Aggregate	
No. 8 (2.36 mm)	25 lbs (10 kg)
No. 4 (4.74 mm)	25 lbs (10 kg)
Coarse Aggregate	
3/8" (9.5 mm)	8 lbs (4 kg)
1/2" (12.5 mm)	16 lbs (8 kg)
5/8" (16.0 mm)	30 lbs (15 kg)
3/4" (19.0 mm)	44 lbs (20 kg)
1" (25.0 mm)	88 lbs (40 kg)
1½" (37.5 mm)	132 lbs (60 kg)

^A For processed aggregate, use the nominal maximum size as indicated by the appropriate specification or description. If the specification or description does not indicate a nominal maximum size use the maximum size (sieve indicating 100% passing).

^B For combined coarse and fine aggregates, for example, base or subbase, the minimum weight shall be the coarse aggregate minimums plus 25 lbs (10 kg).

PROCEDURE

When practicable, samples shall be obtained from the finished product. Sampling requires a number of individual samples that are combined to make a composite sample. Reduce the sample to the required size by quartering or splitting in accordance with T 248.

- **SAMPLING FROM ROADWAY:**

When taking samples from roadway material or in-place, take the samples from at least three approximately equal increments across the roadway. Obtain samples from the full depth of the course. Take care to avoid including material from the underlying subgrade or base course. Combine the samples to form a composite sample.

- **SAMPLING FROM A FLOWING AGGREGATE STREAM:**

Obtain at least three approximately equal increments and combine to form the required size sample. Collect the samples in a pan or by use of a sampling device. Take the samples from the entire cross section as it is being discharged. The receptacle should be of sufficient size to intercept the entire stream and hold the material without overflowing.

- **SAMPLING FROM A WINDROW:**

Sample windrows after equalization has occurred. Sample the windrow by removing the top one foot of material and obtain part of the sample from each side. Avoid the segregated coarser material at the bottom of the side slope. Combine three samples to form a composite sample.

- **SAMPLING FROM A CONVEYOR BELT:**

Obtain at least three approximately equal increments and combine to form the required size sample. Stop the conveyor belt and clean off a section of material from the belt. Insert a template that conforms to the shape of the belt. Carefully remove all the material from the template. Use a scoop to remove as much of the material as possible. A brush and dust pan may be used to remove the fine material. Make sure to include all of the fine material. Space the three samples apart.

- **SAMPLING FROM A STOCKPILE:**

Segregation often occurs when materials are stockpiled. Thus, it is difficult to ensure unbiased samples from stockpiles. For coarse or mixed coarse and fine aggregate, make every effort to enlist the services of power equipment to develop a separate, small sampling pile composed of material from various levels and locations in the main pile. Combine several increments to compose the sample.

Where power equipment is not available, combine material from at least three increments; the top third, middle third, and bottom third of the pile. Shove a board vertically into the pile just above the sampling point to aid in preventing further segregation. Remove the outer layer, which may be segregated, and sample the material beneath.

An alternate sampling method is to insert a sampling tube into the pile at a minimum of five random locations to extract material to form a sample. Sampling tubes are approximately 1¼" (minimum) in diameter by 6 ft. (minimum) in length

- **SAMPLING FROM A TRUCK:**

For coarse aggregate or composite of coarse and fine aggregate, sample from trucks. Take samples from a minimum of three trenches. Dig trenches across the truck box at points on the surface that appear to be representative of the material. Make the trench bottom approximately level, at least one-foot wide and one-foot below the surface of the aggregate. Take equal portions of material by pushing the shovel

downward into the material in the bottom of the trench at three equally spaced locations. Do not scrape the material horizontally. Combine the nine portions (minimum) to form the combined sample from the truck.

For sampling fine aggregate in truck boxes, insert a sampling tube approximately a minimum of 1¼" in diameter by 6 ft. in length into the material at, at least five increments.

NOTES

The contractor obtains all aggregate samples except verification samples.

It is desirable to sample any material as near as possible to, if not at, the final in-place position. Hierarchies of preferred sampling locations are in-place, windrow, conveyor belt, flowing stream, truck box, or stockpile.